



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,732	03/11/2004	Charles E. Taylor	112440-129	4986
38485	7590	03/31/2009		
ARENT FOX LLP 1675 BROADWAY NEW YORK, NY 10019			EXAMINER BEHNCKE, CHRISTINE M	
			ART UNIT 3661	PAPER NUMBER
			NOTIFICATION DATE 03/31/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

NYIPDocket@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary

Application No.

10/798,732

Applicant(s)

TAYLOR ET AL.

Examiner

CHRISTINE M. BEHNCKE

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-96 is/are pending in the application.
- 4a) Of the above claim(s) 23-96 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

This office action is in response to the Amendment and Remarks filed January 5, 2009, in which claims 1-22 were presented for examination; claims 23-96 are withdrawn.

Response to Arguments

Applicant's arguments filed January 5, 2009 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant specifically contends the applied reference Hulden merely teaches cleaning which requires the smallest amount of energy are cleaned first; the energy based approach does not determine if the travel path is free from obstructions, rotates by a predetermined number of degrees and recalculates the travel path. (Remarks 21) The Examiner respectfully disagrees. Based on the broadest reasonable interpretation of the claim language, Hulden's navigation path determination reads on the claimed limitation travel path. Hulden further describes determining if there is an obstacle in front of the robot, prohibiting forward movement, then turning by predetermined degree to the left or right. The Examiner does not disagree that Hulden's navigation path determination is based on energy minimization, but nothing in the claim language excludes this feature or distinguishes a specific different type of path determination. Please see the cited portions of Hulden cited below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-10, 12, and 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Hulden, WO2002/075470.

(Claims 1 and 12) Hulden describes a method of operating and a robot cleaner comprising: a body including a cleaning unit (brush); at least one wheel coupled to the body (R and L wheel, figure 4); at least one motor operatively coupled to the at least one wheel (R- and L-wheel motor); at least one processor operatively coupled to the at least one motor (CPU); at least one input device operatively coupled to the at least one processor (transmitter); at least one sensor operatively coupled to the at least one processor (tilt switches, bumpers, hall sensors); and at least one memory device storing a plurality of instructions which are executable by the at least one processor (RAM, FPROM, EEPROM);

(a) causing at least one wheel to move, wherein the wheel is coupled to a body including a cleaning unit (figure 4, abstract); (b) causing the body to travel on a surface along a travel path (pg 12, line 16- pg 13, line 6), the surface being definable by a

plurality of cells (pg 5, lines 9-14); (c) during the traveling: (i) gathering data corresponding to each traveled cell and each non-traveled cell (pg 10, line 26- pg 11, line 2 and pg 12, line 27- pg 13, line 8); (ii) at least partially cleaning the traveled cells (pg 13, lines 3-5); and (iii) storing the data, the stored data representing a map (figure 5); (d) determining which part of the map has a non-traveled cell (pg 17, lines 15-20); and (e) using the map to calculate a travel path to the non-traveled cell (pg 12, line 27- pg 13, line 8); (f) using the map to determine if the travel path is free from obstructions (pg 17, lines 22-28, pg 19, lines 7-11); and (g) if path is obstructed, rotating the travel path by a predetermined number of degrees (pg 19, lines 11-14, pg 18, lines 1-8) and repeating steps (e)-(f) (pg 17, lines 22-28); and (h) if path is not obstructed, repeating steps (b)-(g) (pg 5, lines 17-20).

(Claims 4 and 15) Hulden further describes wherein the map is composed of cells (pg 5, lines 9-14).

(Claims 5 and 16) Hulden further describes wherein the cells are marked as obstacles, cleaned or uncleaned (pg 13, lines 4-6).

(Claims 6 and 17) Hulden further describes wherein the map is composed of cells and a width of a cell corresponds to portion of effective cleaning unit width of the robot cleaner (pg 15, line 22- pg 16, line 3).

(Claims 7 and 18) Hulden further describes wherein the map is composed of cells and wherein a cell can be set cleaned with a single straight line path segment of robot cleaner (pg 15, line 22- pg 16, line 3).

(Claims 8 and 19) Hulden further describes wherein the map is a room map (pg 20, lines 7-16).

(Claims 9 and 20) Hulden further describes wherein the map contains information about a region being cleaned (pg 18, line 22- pg 19, line 5).

(Claims 10 and 21) Hulden further describes wherein information of the map is cleared after the region is cleaned (pg 18, line 22- pg 19, line 5, pg, 13, line 27- pg 14, line 8).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2, 11, 13 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Hulden in view of Kurtzberg, US 6,167,332.

(Claims 2 and 13) Hulden describes wherein the map is composed of a plurality of cells, but does not describe wherein the internal map is a subgrid. However, Kurtzberg teaches a method of navigation for an autonomous vehicle, including the surface area which the vehicle is to travel, the map, is defined by a plurality of cells (figures 6 and 8), wherein the map is a subgrid map (figure 6, local grid).

(Claims 11 and 22) Kurtzberg further teaches wherein the map contains information about the region being traversed (column 3, lines 49-53); and wherein a new map is prepared for the next region to be traversed (column 3, lines 54-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Hulden because the mapping teachings of Kurtzberg lower the operational costs of navigating through a large area (column 1, lines 56-65).

Claim Rejections - 35 USC § 103

Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulden in view of Kurtzberg as applied to claims 2 and 13 above, and further in view of Okumura, US 4,674,048.

Hulden describes wherein the robot moves first forward if there is a free cell and then by default attempts to turn left (pg 19, lines 7-14) but does not describe wherein a subgrid is cleaned in a serpentine clean. However, Okumura teaches a cleaning a mapped area comprising a plurality of cells, wherein the map is cleaned in a serpentine clean (column 5, lines 2-41). It would have been obvious to one of ordinary skill in that art at the time of the invention to combine the teachings of Okumura with the invention of Hulden in view of Kurtzberg because, utilizing the serpentine movement efficiently covers the most cells in logical order and treating the closest unclean cells first.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE M. BEHNCKE whose telephone number is (571)272-8103. The examiner can normally be reached on 8:30 am- 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas G. Black/
Supervisory Patent Examiner, Art Unit 3661